

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
GEOFFREY L. MELNICK
G. E. EHRLICH (1995) LTD.
11 MENACHEM BEGIN STREET
RAMAT-GAN, ISRAEL 52 521

RECEIVED
12 MAR 2006
FILE NO. 29112
G.E. EHRLICH (1995) LTD.

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 29112	Date of mailing (day/month/year) 01 FEB 2006 d
International application No. PCT/IL05/00048	International filing date (day/month/year) 13 January 2005 (13.01.2005)
Applicant V-TARGET TECHNOLOGIES LTD.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70.

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
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Authorized officer

Kenneth Wieder

Telephone No. 571-272-2986

Rugenia Zagan

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 29112	FOR FURTHER ACTION <div style="font-size: small; text-align: right;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div>	
International application No. PCT/IL05/00048	International filing date (<i>day/month/year</i>) 13 January 2005 (13.01.2005)	(Earliest) Priority Date (<i>day/month/year</i>) 13 January 2004 (13.01.2004)
Applicant V-TARGET TECHNOLOGIES LTD.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed.
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1
☐ as suggested by the applicant.
☒ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL05/00048

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01T 1/166

US CL : 250/363.04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 250/363.04, 370.04, 363.02, 363.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,694,933 A (MADDEN et al.) 09 December 1997, fig. 1-3; col. 12, lines 1-65.	1-32



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

26 January 2006 (26.01.2006)

Date of mailing of the international search report

01 FEB 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

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Authorized officer

Kenneth Wieder

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Rugenia Zogian

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL05/00048

Continuation of B. FIELDS SEARCHED Item 3:
USPAT; US-PGPUB
three dimensional

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:
GEOFFREY L. MELNICK
G. E. EHRLICH (1995) LTD.
11 MENACHEM BEGIN STREET
RAMAT-GAN, ISRAEL 52 521

Date of mailing
(day/month/year) **01 FEB 2006**

Applicant's or agent's file reference

FOR FURTHER ACTION

See paragraph 2 below

29112

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/IL05/00048

13 January 2005 (13.01.2005)

13 January 2004 (13.01.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): G01T 1/166 and US Cl.: 250/363.04, 370.04, 363.02, 363.1

Applicant

V-TARGET TECHNOLOGIES LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US
Mail Stop PCT, Attn: ISA/US
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Date of completion of this opinion
26 January 2006 (26.01.2006)

Authorized officer

Kenneth Wiener

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IL05/00048

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IL05/00048

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-32</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-32</u>	NO
Industrial applicability (IA)	Claims <u>1-32</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-32 lack novelty under PCT Article 33(2) as being anticipated by Madden et al (US 5,694,933).

Regarding claims 1, 23, 32 Madden discloses an apparatus and method for radiation based imaging of a non-homogeneous target having distinguishable regions therein (different organs or parts of an organ or tissue), the apparatus comprising: an imaging unit (22) configured to obtain radiation intensity data from the target region in the three spatial dimensions (X, Y and Z(depth)); and an image analysis unit (20) that analyzes the intensity data obtained in the three spatial dimensions and at least one other dimension (time), in order to map the distinguishable regions (see figures 1-3 and corresponding descriptions).

Regarding claims 2, 3 Madden discloses that the image analysis unit is configured to constrain image output to a subset of the mapped regions, thereby increasing the resolution of the image (i.e., through window setting in step 30K, the image output can be constrained to a particular subset of the target region, see Col. 21, lines 32-67).

Regarding claims 4, 5, 6, 24, 25, 26, 27 Madden discloses applying different (at least two) radioactive markers that have different take-up characteristics over time for respective regions, each of the radioactive markers having distinguishable radiation, where the image analyzing unit is configured to use this distinguishable feature as another dimension in order to carry out the mapping (see Col. 23, lines 1-65).

Regarding claims 7, 10 Madden discloses that the image analysis unit is configured to use the mapping to generate an image comprising the regions as distinct entities (see Col. 24, lines 5-49).

Regarding claims 8-12 Madden discloses that the image analysis unit is configured to use the mapping to generate an image showing only a subset of the region and exclude all others (see Col. 28, line 1-Col. 29, line 10).

Regarding claim 16 Madden discloses that the non-homogeneous target are is a region of a living tissue and that the distinguishable regions are either different organs, tissue regions or blood and organ tissue.

Regarding claim 17 Madden discloses that the radiomarker can be thallium 201 and technetium 99 (see Col. 19, lines 48-51).

Regarding claim 18 Madden discloses that the image analysis unit is configured to ignore image data as being outside of target area is image data does not conform to at least one take-up characteristics (see Col.22, lines 1-67, Col. 23, line 1-Col. 24, line 49).

Regarding claims 19, 21, 22, 28, 30, 31 Madden discloses that the system is configured to use the mapping to identify at least one region of low emissivity to thereby concentrate imaging resources on the identified region, where the first mapping is to identify an organ and a second mapping is constrained within the organ (see Col. 27, line 1-Col. 29, line 10).

Regarding claims 20, 29 Madden discloses taking images of different regions of the target by moving the detector along the X and Y axis of the regions, which means that it allows for a voxel-by-voxel imaging, and thus allows merging of voxels of identified regions.

Madden discloses as prior art using Geiger counters as pad of an imaging unit but fails to specifically disclose Geiger counters in his invention. However, since he discloses count measuring and intensity over time measuring, it would have been obvious to one having ordinary skill in the art to use Geiger counters in the imaging unit, since such counters are well known and used in the art. Madden discloses a controller that controls the direction of the detectors to take images from different locations to obtain 3D spatial data for a given target.